



Montana Fish, Wildlife & Parks
4600 Giant Springs Road
Great Falls, MT 59405

SUBJECT: Carroll Trail/Machler FAS Bank Stabilization on Big Spring Creek

DATE: August 22, 2020

Dear Interested Party:

Montana Fish, Wildlife & Parks (FWP) has prepared a draft Environmental Assessment (EA) for public review regarding a proposal to apply a bank stabilization/riparian enhancement treatment on a portion of Big Spring Creek near the boundary between the Carroll Trail and Machler Easement Fishing Access Sites (FAS's). The project would apply an alluvial brush matrix (ABM) to approximately 300 feet of eroding streambank. The ABM approach is proposed as it provides the desired bank stabilization and reduces erosion while allowing natural stream migration, enhances the aquatic habitat by incorporating woody debris and encouraging streambank vegetative growth, and promotes the establishment of a riparian buffer by creating an inset bench vegetated with native riparian plants.

Copies of the draft EA can be found at the FWP Lewistown Area Resource Office located at 333 Airport Road, Lewistown, Montana or on FWP's website at <http://fwp.mt.gov/news/publicNotices/>. The draft EA will be open for public review and comment from August 25, 2020 through September 24, 2020. Comments can be sent via email to clsmith@mt.gov or mailed to:

Montana FWP Lewistown Area Resource Office
Attn: Big Spring Creek EA
333 Airport Road, Ste. 1
Lewistown, MT 59457

Thank you for your interest and involvement.

Sincerely,

Gary Bertellotti
Montana Fish, Wildlife & Parks
Region 4 Supervisor



Draft Environmental Assessment | August 19, 2020

Carroll Trail/Machler FAS Bank Stabilization on Big Spring Creek

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PART 1. PROJECT SUMMARY

Project Title: Carroll Trail/Machler FAS Bank Stabilization on Big Spring Creek

Project Location: Big Spring Creek, Lewistown, Montana
NW ¼, NW ¼, SW ¼ of section 10, Township 15 N, Range 18 E

Description of Project

Montana Fish, Wildlife & Parks proposes to apply a bank stabilization/riparian enhancement treatment to a portion of Big Spring Creek (north of Lewistown, MT) near the boundary of the Carroll Trail Fishing Access Site (FAS) and the Machler Easement FAS (Figure 1). The proposed treatment would be the application of an alluvial-brush matrix (ABM) to approximately 300-feet of the north bank (Figure 2). As can be seen in Figure 2, the creek has migrated approximately 65-feet since 2005 and eroded approximately 12,300 square feet of streambank during that period. Using estimates of an average bank height of 3-feet and a rough estimate of 60-80 pounds per cubic-foot of soil, FWP estimates that the site has contributed an average sediment load of 92-123 tons per year since 2005. The stream migration is not an immediate risk to high value property/infrastructure, however, Montana FWP and the Machler Easement landowner have identified the need to provide soft stabilization at the site to promote more natural rates of streambank migration and encourage a healthy, functioning riparian area.

FWP fully acknowledges that streambank migration (i.e. erosion) is part of the natural function of rivers and streams through time. However, the previous condition of the reach upstream (entrenched prior to a 2016 restoration project), historic streambank stabilization efforts near the Lewistown Wastewater Treatment Plant (car bodies & concrete rip-rap), and the existing shallow-rooted pasture grasses immediately along the existing bank have led to excessive rates of erosion at the proposed site. If applied, the bank stabilization and development of a riparian buffer would be expected to slow the stream migration in the area from the 15-year average of 4.5 feet per year to more natural rates of less than 1-foot per year.

The ABM approach provides some deformable bank stabilization along a constructed bank and encourages riparian development by installing a brush/willow trench along an inset bench and resloping back to the existing ground elevation where vegetation can establish (Figure 3). The ABM approach consists of creating a bank of alluvium (local gravel and cobbles) mixed with woody brush materials immediately above the typical base flow elevation. The wood extends into the channel, dissipating energy at the streambank while also providing valuable aquatic habitat. Behind the constructed bankline, an inset bench is installed and planted with local willow clumps/cuttings which encourages vegetative growth. Behind the bench, the existing ground is cut to a 3:1 slope until the existing ground elevation is met and revegetated via seeding, cuttings, salvaged sod mats, and possibly live plantings.

All of the materials for the ABM treatment would be locally collected from the Carroll Trail and Machler Easement FAS's. Alluvium collection areas would be reclaimed match adjacent ground contours. Willow clump and sod mat collection areas would be reclaimed to match adjacent

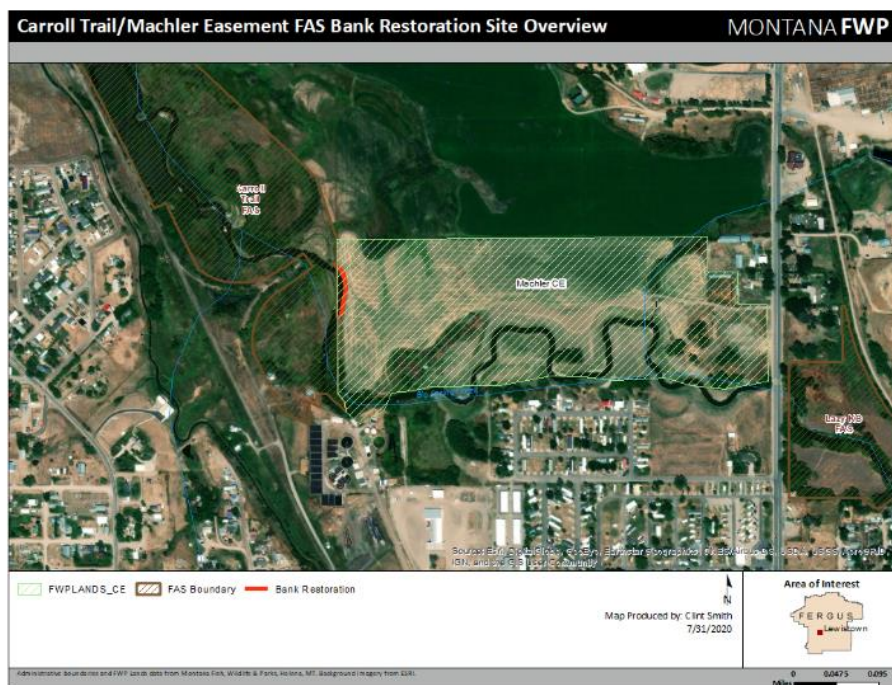


Figure 1. Map showing the general location of the proposed bank stabilization/riparian enhancement work on Big Spring Creek.



Figure 2. Map showing detailed location of proposed bank stabilization/riparian enhancement and material collection areas.

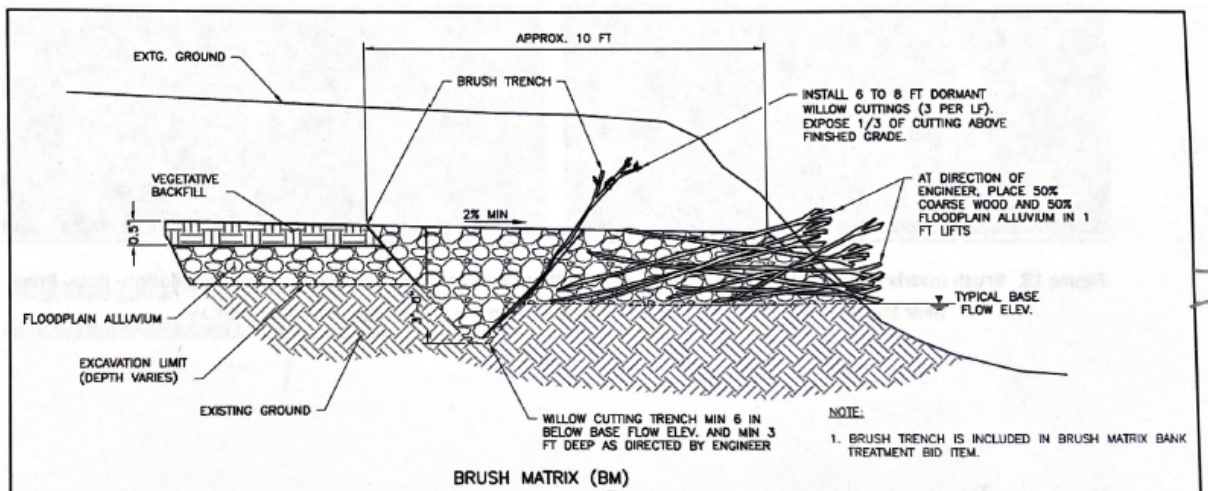


Figure 3. Schematic drawing showing example design of an alluvial-brush matrix (CDM Smith, 2016).

ground contours and, where practical, filled and reseeded. Brush and willow cutting collection areas would not be anticipated to require reclamation. The work would be completed with construction equipment, including but not limited to an excavator, dump truck, and skid-steer. All aspects of the proposed project, including labor, machinery, mobilization, and oversight have been estimated to cost approximately \$17,000. The project timeline would be anticipated to begin in November 2020 and completed within 1-week of the commencement of work. Equipment would be cleaned prior to coming on site. Some fill material would need to be wasted and would be placed outside the floodplain, either as fill for material collection sites or spread and incorporated into the Machler Easement landowner's field. Continued management of the site following the proposed action would ensure establishment of the bank stabilization and riparian vegetation and address weeds via FWP's FAS weed reduction management effort. Project success would be monitored by photo points documenting the objectives of slowing the lateral migration at the site and the establishment of a riparian buffer. Additional aquatic and riparian habitat benefits are anticipated but would not be directly monitored.

Project Timeline

The proposed action would occur in November 2020, with the project being completed within a week of the commencement of work.

Need and Benefits

Montana FWP and the Machler Easement landowner have identified the need to slow the stream migration at the proposed site to more natural rates seen throughout the Big Spring Creek



drainage. Currently, the primary culprit of the increased erosion at the site is the lack of a riparian buffer and the immediate exposed streambank consisting of shallow-rooted pasture grasses. Stream migration at the site is expected and necessary to maintain overall channel stability and function. The landowner and FWP have collaborated to identify an approach that will allow proper stream function and habitat improvement while minimizing the risk of additional large-scale land loss. The benefits of the proposed action include the development of a riparian buffer which will be fenced so as to exclude livestock, a deformable bank stabilization approach that will encourage more natural rates of stream migration, and aquatic habitat benefits stemming from incorporating large woody debris into the streambank and the establishment of riparian vegetation.

Relevant Authorities

Montana Fish, Wildlife and Parks has the authority under state law (§ 87-1-201 (3) Montana Code Annotated (MCA)) to “spend for the protection, preservation, management, and propagation of fish....” and under (§ 23-1-126 (1) MCA) to “seek(s) a goal of no impact to adjoining private and public lands by preventing impact on those adjoining lands from noxious weeds, trespass, litter, noise and light pollution, streambank erosion, and loss of privacy.”

Furthermore, it is the policy of Montana FWP, under Administrative Rules of Montana (ARM) 12.8.107, that the purpose of State Fishing Access Sites are “To provide permanent public access to high-quality rivers, streams, and lakes.”

The proposed project is intended to take action for the protection of aquatic and riparian habitat that will reduce streambank erosion thereby maintaining the high-quality habitat and fishery present in Big Spring Creek.

Relevant Plans

The 2019-2027 *Statewide Fisheries Management Program and Guide* identifies the management direction at Fishing Access Sites and the Aquatic Habitat Program to “conserve, protect and enhance fish and wildlife populations, their habitats, and the public’s opportunity to enjoy them.” Additionally, the *Recreational Access Agreement and Deed of Conservation Easement – Machler Property* identifies the shared goal between FWP and the landowner of maintaining the conservation value of the land and preserving and providing for the relatively natural habitat for native plants, fish, and wildlife.

Alternatives to Proposed Action

Alternative A

The **No Action Alternative** would result in the status quo and no bank stabilization or habitat improvements would occur.



Alternative B

The **Rip-Rap Alternative** would provide hard bank stabilization at the proposed site by placing blanket rock rip-rap. The rock would be keyed into the toe of the streambank and placed at a 2:1 slope. The upper ½ of the slope would be filled and vegetated via sod mats and/or seeding. Rock rip-rap is typically reserved for areas where bank deformability cannot be tolerated and/or where there is a substantial threat to high-value property/infrastructure. Rock rip-rap can have substantial impacts to channel stability and does not provide habitat benefits to the aquatic or riparian systems. Additionally, rock rip-rap would be anticipated to be more expensive than other bioengineered approaches, estimated at approximately \$100 per linear foot.

Alternative C

The **Root Wad Alternative** would provide semi-deformable bank stabilization at the proposed site by burying harvested root wads into the streambank. The root wads are exposed at the baseflow elevation in the streambank where they dissipate energy and trap sediment. Root wads provide good fish habitat and can be less deformable than the brush matrix approach. The root wad approach would require harvesting large trees and can be slightly more expensive and labor intensive than the proposed alternative.

Decision to be Made

The decision to be made is whether FWP should move forward with the proposed alternative of installing an alluvial-brush matrix on the eroding bank at the proposed site near the boundary between the Carroll Trail and Machler Easement FAS's with the intent of providing bank stabilization and riparian enhancement. Following completion of the Environmental Assessment (EA) and public comment period, the FWP Region 4 Regional Supervisor will issue a decision notice recommending a course of action. This course of action could be the Proposed Alternative, the No Action Alternative, the Rip-Rap Alternative, the Root Wad Alternative, or an action that is within the scope of the analyzed alternatives. This EA and the public comments FWP receives are part of the decision-making process.

Other groups or agencies contacted, or which may have overlapping jurisdiction

Groups contacted to date include the Big Spring Watershed Council and the Snowy Mountain Chapter of Trout Unlimited. To date, conversations with those groups regarding the proposed action have been positive. Additional jurisdictions over the proposed action include the Army Corps of Engineers 404 permitting, Montana FWP 124 permitting, Montana DEQ 318 authorization, and Fergus County Floodplain permitting. Those entities have been contacted as part of the permitting process.



PART 2. ENVIRONMENTAL REVIEW

Physical Environment

Table 1. Potential impact on physical environment.

Will the proposed action result in potential impacts to:	Unknown	Potentially Significant	Minor	None	Can Be Mitigated	Comments Provided
1. Unique, endangered, fragile, or limited environmental resources				X		X
2. Terrestrial or aquatic life and/or habitats			X			X
3. Introduction of new species into an area				X		
4. Vegetation cover, quantity and quality			X			X
5. Water quality, quantity and distribution (surface or groundwater)			X			X
6. Existing water right or reservation				X		
7. Geology and soil quality, stability and moisture				X		
8. Air quality or objectionable odors			X			X
9. Historical and archaeological sites				X		
10. Demands on environmental resources of land, water, air & energy				X		
11. Aesthetics			X			X

Comments

1. At the HUC-5 level, Sauger, Northern Redbelly Dace, and Westslope Cutthroat Trout are known species of special concern present. Sauger have been documented in lower Big Spring Creek below the Cottonwood Creek confluence. Northern Redbelly Dace are present in Big Spring Creek and many of the tributaries. Westslope Cutthroat Trout are present primarily in the isolated headwaters of Cottonwood Creek and East Fork Big Spring Creek within the drainage. Regardless of the alternative selected, associated risks to species of special concern are considered negligible. The proposed work is not anticipated to impact any species of special concern due to their absence from the work area and existing distributions within the drainage.



Additionally, bald eagles are known to occur throughout Big Spring Creek. Anticipated impacts to bald eagle presence, nesting, foraging, and distribution from the listed actions would be negligible.

2. Impacts to terrestrial or aquatic life would not be anticipated. The Proposed Alternative would be expected to temporarily disturb the existing terrestrial and aquatic habitats while work occurs. Upon completion, the Proposed Alternative would be expected to improve the terrestrial and aquatic habitat by creating a riparian buffer in place of shallow-rooted pasture grasses and encouraging natural streambank development with large woody debris and more natural rates of stream migration.

Similar impacts would be anticipated with the Root Wad Alternative.

The Rip-Rap Alternative would similarly disturb the habitat during construction while not providing the anticipated habitat benefits of the Proposed and Root Wad Alternatives.

Rip-Rap does not encourage riparian development, vegetative shading of the stream, and large woody debris that the bioengineered approaches provide. The fact that Rip-Rap is meant to be nondeformable also can negatively affect stream channel function and stability by locking the streambank in place.

The No Action Alternative would not result in any impacts to terrestrial or aquatic habitat.

4. The proposed action would result in the disturbance and modification of the vegetation within the impacted streambank & riparian area. Initially, the existing vegetation, primarily shallow-rooted pasture grasses, would be removed. The new streambank would be constructed and roughly 25-30 feet from the streambank would be modified by the brush matrix, willow trench, and sloping. Disturbed areas would be revegetated via cuttings, plantings, sod mats, and seeding. The area of impact would change from shallow-rooted pasture grasses to a mixture of native riparian shrubs, trees, and grasses. Management of noxious weeds in the area would be a concern and would be monitored and mitigated via biocontrol, mechanical removal, and/or spraying. Similar impacts would be expected from the Root Wad Alternative, however the extent of the change from pasture to riparian would likely be smaller. Under the Rip-Rap Alternative, riparian vegetation development would be limited to the immediate toe of the slope and the extent of the change from pasture to riparian would be the smallest of the action alternatives. The No Action Alternative would not impact vegetation.

5. The proposed action would temporarily impact water quality by inducing turbidity during streambank work. Turbidity increases anticipated from the proposed work would not be expected to have biological impacts. No action would occur until a DEQ 318 Authorization for turbidity related to construction activities for the work is issued. All guidelines of the 318 Authorization would be followed. Erosion control measures such as wattles, barriers, and temporary flow deflectors would be used, and all applicable best management practices would be followed. Construction equipment would be cleaned



prior to working near the waterway and inspected to ensure no oil or hydraulic fluid leaks are present. Equipment fueling would occur outside the floodplain area. Anticipated water quality impacts would be similar for the other action alternatives. The No Action Alternative would not impact water quality.

8. The presence of construction equipment would result in exhaust and noise stemming from their operation. These impacts would occur under the all the listed alternatives except for the No Action Alternative. Anticipated impacts be temporary and minor in nature.

11. The presence of construction equipment and the proposed work would alter the aesthetics of the area. These impacts would occur under all the listed alternatives except for the No Action Alternative. The anticipated impacts to aesthetics would be short-term and minor in nature, with the impacts ending upon the completion of the proposed work.



Human Environment

Table 2. Potential impacts on human environment.

Will the proposed action result in potential impacts to:	Unknown	Potentially Significant	Minor	None	Can Be Mitigated	Comments Provided
1. Social structures and cultural diversity				X		
2. Changes in existing public benefits provided by wildlife populations and/or habitat			X (Benefit)			X
3. Local and state tax base and tax revenue				X		
4. Agricultural production				X		
5. Human health				X		
6. Quantity and distribution of community and personal income				X		
7. Access to and quality of recreational activities			X (Benefit)			X
8. Locally adopted environmental plans & goals (ordinances)				X		
9. Distribution and density of population and housing				X		
10. Demands for government services			X			X
11. Industrial and/or commercial activity				X		

Comments

2 & 7. The proposed action would be intended to improve the local habitat conditions at the site, thereby improving recreational hunting and angling conditions and opportunity at the Carroll Trail and Machler Easement FAS's. Similar impacts would be expected from the Root Wad Alternative. The Rip-Rap Alternative would not provide the same habitat benefits and thereby minimally impact the public benefits from the existing condition. The No Action Alternative would not impact public benefits. *Hunting is not legal on the Machler Easement FAS, however, improved habitat conditions on the Machler Easement benefit upland birds and big game that use the Carroll Trail FAS.



10. The proposed action would result in a slight increase in demands for government services in the form of EA & permit preparation, on-site monitoring, and post-implementation monitoring. These responsibilities would be absorbed into the existing responsibilities of the Lewistown Area Fisheries Management project without impacting other services of the project. These impacts would be similar for all the action alternatives. The No Action Alternative would not impact government services.



Does the proposed action involve potential risks or adverse effects which are uncertain but extremely harmful if they were to occur?

No, the proposed action does not involve uncertain risks or adverse effects that would be extremely harmful.

Does the proposed action have impacts that are individually minor, but cumulatively significant or potentially significant?

No, this environmental review found that cumulatively/potentially significant impacts from the proposed action would not be anticipated.

PART 3. NARRATIVE EVALUATION AND COMMENT

This analysis did not reveal any significant impacts to the human or physical environment.

The No Action Alternative would result in no impacts to the physical or human environments. Maintaining the status quo at proposed site is not preferable from a land management, good neighbor, or habitat perspective. The No Action Alternative is not recommended because it does not meet the objectives of providing stream bank stabilization while minimizing negative impacts and preferably benefiting the riparian and aquatic habitat.

Compared to the Proposed Alternative, the Rip-Rap Alternative would result in similar impacts to the human and physical environment, however without the anticipated habitat benefits. The Rip-Rap Alternative would lock the streambank in place and not encourage the development of a riparian buffer. The Rip-Rap Alternative would meet the objective of providing streambank stabilization, however it would not sufficiently meet the objective of minimizing negative impacts and preferably benefiting the riparian and aquatic habitat. Because of these factors, the Rip-Rap Alternative is not preferable given the alternatives available.

Compared to the Proposed Alternative, the Root Wad Alternative would result in similar impacts to the human and physical environment. The Root Wad Alternative would benefit the immediate streambank habitat and provide a less deformable bank stabilization than the proposed ABM. Additionally, the Root Wad Alternative requires additional materials which are not readily available nearby and would be more labor intensive than the Proposed Alternative. The Root Wad Alternative would meet the defined objectives of the project. However, because of the materials and labor factors mentioned above, the Root Wad Alternative is not preferable given the alternatives available.

After consideration of the alternatives listed, the desired objectives, and any limitations identified in this analysis, it is recommended that the Proposed Alternative, as described in this Environmental Assessment, has the greatest potential of fulfilling the desired



objectives while having minimal impacts to the human and physical environments.

PART 4. PUBLIC PARTICIPATION

Describe the level of public involvement for this project if any, and, given the complexity and the seriousness of the environmental issues associated with the proposed action, is the level of public involvement appropriate under the circumstances?

Notice of this draft EA will be distributed to neighboring landowners, local recreational groups, local sporting goods stores, and other interested parties to ensure awareness of the proposed action. This EA will be posted on the FWP website and copies will be made available at the FWP Lewistown Area Resource Office. A notice of the proposed project and EA will be advertised in the *Lewistown News-Argus*.

Due to the simple nature and minor impacts of the proposed action, the level of public involvement is appropriate for the proposed project.

Duration of comment period, if any:

The draft EA will be open for public comment for a period of 30 days from August 25, 2020 through September 24, 2020.

PART 5. EA CONCLUSION

Based on the significance criteria evaluated in this EA, is an EIS required?

No, an EIS is not required.

If an EIS is not required, explain why the EA is the appropriate level of analysis for this proposed action.

Based on an evaluation of impacts to the physical and human environment stemming from the proposed action, this assessment revealed no significant negative impacts from the proposed action. Additionally, the proposed action is not expected to be highly controversial. Therefore, an EIS is not necessary and an environmental assessment is the appropriate level of analysis.

Name, title, address and phone number of the person(s) responsible for preparing the EA:

Clint Smith
Fisheries Biologist



Montana Fish, Wildlife, & Parks
333 Airport Road, Ste. 1
Lewistown, MT 59457
(406) 538-2445

List of agencies consulted during preparation of the EA:

Montana Fish, Wildlife, & Parks

Date Completed

August 19, 2020